



# NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY Research Information Center Gaithersburg, MD 20899



## BULLETIN

OF THE

# BUREAU OF STANDARDS

S. W. STRATTON, DIRECTOR

VOLUME 3

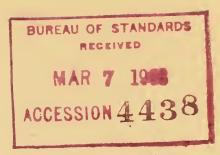
(Nos. 1, 2, 3, 4)

1907



WASHINGTON
GOVERNMENT PRINTING OFFICE
1907





#### CONTENTS OF VOLUME 3.

#### NO. 1.

|       | [Issued April, 1907.]  | Daws  |
|-------|--|-------|
|       | On the Geometrical Mean Distances of Rectangular Areas and         | Page. |
| 47    | THE CALCULATION OF SELF-INDUCTANCE                                 | I     |
| 48    | THE COMPENSATED TWO-CIRCUIT ELECTRO-DYNAMOMETERE. B. Rosa          | 43    |
| 44    | COMPLETE FORM OF FECHNER'S LAW                                     | 59    |
| 1     | A COMPARISON OF THE UNIT OF LUMINOUS INTENSITY OF THE UNITED       |       |
|       | STATES WITH THOSE OF GERMANY, ENGLAND, AND FRANCE                  |       |
|       | Edward P. Hyde   | 65    |
| 51    | GEOMETRICAL THEORY OF RADIATING SURFACES WITH DISCUSSION OF        |       |
|       | LIGHT TUBES Edward P. Hyde   | 81    |
| - 1   | THE INFLUENCE OF BASIC LEAD ACETATE ON THE OPTICAL ROTATION OF     |       |
| 1     | Sucrose in Water Solution  | 105   |
| 7- 2  | On the Colorimetric Determination of Iron with Special Refer-      |       |
| , -   | ENCE TO CHEMICAL REAGENTS  | 115   |
| I and | ON SULPHOCYANIC ACID   | 157   |
|       | NO 2   |       |
|       | NO. 2.   |       |
|       | [Issued May, 1907.]  |       |
| 4,    | RADIATION FROM AND MELTING POINTS OF PALLADIUM AND PLATINUM        |       |
|       |  | 163   |
|       | THE MUTUAL INDUCTANCE OF A CIRCLE AND A COAXIAL SINGLE-LAYER       |       |
| 7 0   | COIL—THE LORENZ APPARATUS AND THE AYRTON-JONES ABSOLUTE ELEC-      |       |
|       | TRO-DYNAMOMETER  | 209   |
| -     | ON THE ESTABLISHMENT OF THE THERMODYNAMIC SCALE OF TEMPERATURE     |       |
| 3/    | BY MEANS OF THE CONSTANT-PRESSURE THERMOMETER                      |       |
| 7     | Edgar Buckingham   | 237   |
| 5 3   | AN EXACT FORMULA FOR THE MUTUAL INDUCTANCE OF COAXIAL SOLE-        |       |
|       | NOIDSLouis Cohen   | 295   |
| 59    | THE MUTUAL INDUCTANCE OF COAXIAL SOLENOIDS E. B. Rosa and L. Cohen | 305   |
| 60    | THE PRODUCTION OF HIGH-FREQUENCY OSCILLATIONS FROM THE ELECTRIC    |       |
|       | ARC  | 325   |
| 01    | AN EXPLANATION OF THE SHORT LIFE OF FROSTED LAMPS Edward P. Hyde   | 341   |

## Contents of Volume 3.

### NO. 3.

| [Issued August, 1907.]   | Page. |
|--|-------|
| MELTING POINTS OF THE IRON GROUP ELEMENTS BY A NEW RADIATION  METHOD   | 345   |
| On the Determination of the Mean Horizontal Intensity of Incan-<br>descent Lamps. Edward P. Hyde and F. E. Cady              | 357   |
| SIMULTANEOUS MEASUREMENT OF THE CAPACITY AND POWER FACTOR OF CONDENSERS  | 371   |
| ELECTROSTATIC UNIT OF ELECTRICITYE. B. Rosa and N. E. Dorsey   | 433   |
| NO. 4.   |       |
| [Issued October, 1907.]  |       |
| A New Determination of the Ratio of the Electromagnetic to the Electrostatic Unit of Electricity (continued)                 | 541   |
| A Comparison of the Various Methods of Determining the Ratio of the Electromagnetic to the Electrostatic Unit of Elec-       | 341   |
| TRICITY E. B. Rosa and N. E. Dorsey  | 605   |
| PRELIMINARY SPECIFICATIONS FOR CLARK AND WESTON STANDARD CELLS   | 623   |
| CALORIMETRIC RESISTANCE THERMOMETERS AND THE TRANSITION TEM-<br>PERATURE OF SODIUM SULPHATEH. C. Dickinson and E. F. Mueller | 641   |
| On the Standard Scale of Temperature in the Interval, 0° to 100° C   | 041   |
|  | 663   |







